L71 ANSWER 5 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:261457 HCAPLUS
DN 122:189343
ED Entered STN: 24 Dec 1994
TI Propene polymer compositions with balanced rigidity and impact resistance
IN Sugimoto, Ryuichi; Ooe, Tadayuki; Inoe, Takeo
PA Mitsui Toatsu Chemicals, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C08L023-12
ICS C08L051-06
CC 37-6 (Plastics Manufacture and Processing)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06256598	A2	19940913	JP 1993-48885	19930310
PRAI	JP 1993-48885		19930310		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 06256598	ICM	C08L023-12
	ICS	C08L051-06

AB The compns. are prepd. by heat-blending of cryst. propene polymers, reactive monomer-grafted propene polymers, and other monomer-grafted polyolefin rubbers reactive with the grafted propene polymers. A blend of BJ 4H 100, maleated polypropene 1.0, N-[4-(2,3-**epoxypropyl**)-3,5-dimethylbenzyl]methacrylamide-grafted ethylene-propene rubber 1.0, antioxidant 0.1, and Ca stearate 0.1 part gave injection moldings showing **tensile strength** 295 kg/cm2, bending strength 338 kg/cm2, flexural modulus 11,000 kg/cm2, and Izod impact strength 10.8 at +23.degree. and 5.8 at -10.degree..

L71 ANSWER 17 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1989:555429 HCAPLUS
DN 111:155429
ED Entered STN: 28 Oct 1989
TI Prepregs for fiber-reinforced **epoxy** resin composites with increased **toughness**
IN Nakamura, Hiroshi; Yamaguchi, Akira; Takahashi, Tsutomu; Saito, Yasuhisa
PA Sumitomo Chemical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C08J005-24
CC 38-3 (Plastics Fabrication and Uses)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 01056742	A2	19890303	JP 1987-213685	19870826
PRAI	JP 1987-213685		19870826		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 01056742	ICM	C08J005-24

OS MARPAT 111:155429
AB Title prepregs are prepd. by impregnating reinforcing fibers with compns. comprising bisphenol F **epoxy** resins, bisphenol A **epoxy** resins, bisphenol AD **epoxy** resins, and/or aminophenol **epoxy** resins, phenolic OH-terminated resorcinol-type polysulfones [no.-av. mol. wt. (Mn) 3000-30,000], and **epoxy** resin hardeners. Thus, 66.1 parts resorcinol was copolymd. with 168.4 parts 4,4'-dichlorodiphenyl sulfone at 160.degree. for 3 h in DMSO-PhCl mixt. contg. NaOH to give a phenolic OH-terminated polysulfone (I, Mn 44,000), 20 parts of which was blended with 50 parts Epiclon 830 and 50 parts **Sumiepoxy** ELM 100 at 180.degree. for 2 h, then mixed with 4 parts dicyandiamide and 4 parts dichlorophenyl-1,1-dimethylurea to give an impregnating compn. A bundle of acrylic carbon fibers (Magnamite IM 6) was impregnated with the compn. and wound to give prepregs, which were laminated and hot pressed at 120.degree. for 2 h to give test pieces with **tensile strength** 258 kg/mm2 and Charpy impact strength 162 kg-cm/cm2, vs. 237 and 108, resp., without I.

L71 ANSWER 27 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1987:5880 HCAPLUS
DN 106:5880
ED Entered STN: 11 Jan 1987
TI A parametric study of composite performance in compression-after-impact testing
AU Manders, P. W.; Harris, W. C.
CS Amoco Perform. Prod., Inc., Bound Brook, NJ, USA
SO SAMPE Journal (1986), 22(6), 47-51
CODEN: SAJUAX; ISSN: 0091-1062
DT Journal
LA English
CC 37-5 (Plastics Manufacture and Processing)
AB Fiber surface functionality, which promotes adhesion between fiber and matrix, is a key requirement for damage tolerance in carbon fiber-**epoxy** resin composites. Std. prodn. T300 and T500 (33-35 Msi modulus) and T40 (42 Msi modulus) fibers form an interface with typical **epoxy** resin matrixes which is capable of giving excellent damage tolerance, whereas exptl. fibers with lower surface functionality do not. Fiber **tensile strength** of 450-800 kpsi has relatively little influence on damage tolerance. For a given fiber, higher matrix strain to failure (indicating **toughness**) improves compression-after-impact strength. Greater damage tolerance can be obtained with higher resin contents (for systems with 52-60% fiber by vol.). The commonly used variations on layup, ply thickness, and orientation of the quasi-isotropic laminate in the compression test, have no significant effect on compression-after-impact results.
ST carbon **epoxy** composite impact compression
IT **Epoxy** resins, properties
RL: PRP (Properties)
(composites with carbon fibers, compression-after-impact strength of)
IT Carbon fibers
RL: USES (Uses)
(composites with **epoxy** resins, compression-after-impact strength of)
IT **7440-44-0**
RL: USES (Uses)
(carbon fibers, composites with **epoxy** resins, compression-after-impact strength of)

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L70  ANSWER 3 OF 19  HCAPLUS  COPYRIGHT 2005 ACS on STN
AN   1993:82408  HCAPLUS
DN   118:82408
ED   Entered STN:  02 Mar 1993
TI   Manufacture of columns from carbon fiber-reinforced epoxy resin
     prepregs
IN   Maeda, Yutaka; Sugimoto, Yukinobu
PA   Mitsubishi Rayon Co., Ltd., Japan
SO   Jpn. Kokai Tokkyo Koho, 3 pp.
     CODEN: JKXXAF
DT   Patent
LA   Japanese
IC   ICM  B29B015-08
     ICS  B29B011-16; B29C043-02; B29C067-14; C08J005-24
ICI  B29K063-00, B29K103-04, B29K105-08, B29L031-30, C08L063-00
CC   38-2 (Plastics Fabrication and Uses)
     Section cross-reference(s): 37
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   JP 04255306          A2    19920910    JP 1991-16401          19910207
PRAI JP 1991-16401              19910207
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 JP 04255306     ICM    B29B015-08
                 ICS    B29B011-16; B29C043-02; B29C067-14; C08J005-24
                 ICI    B29K063-00, B29K103-04, B29K105-08, B29L031-30,
                        C08L063-00
AB   The title columns, esp. useful for ships and buildings, are prepd. by
     molding half of the column from epoxy resin prepregs of carbon
     fibers having tensile elasticity .gtoreq.20 ton/mm2,
     tensile strength .gtoreq.300 kg/mm2;
     providing fibrous degree of orientation at 0.degree. direction .gtoreq.50%
     and fibers content 50-70 vol.% then bonding two pieces of the half column
     together.
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L70 ANSWER 4 OF 19 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1992:61251 HCAPLUS
DN 116:61251
ED Entered STN: 21 Feb 1992
TI Fiber-reinforced resin composites with improved vibration-damping properties
IN Mizuno, Masaharu
PA Toray Industries, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C08J005-04
CC 38-3 (Plastics Fabrication and Uses)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03207723	A2	19910911	JP 1990-2081	19900108
PRAI	JP 1990-2081		19900108		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 03207723	ICM	C08J005-04

AB Title composites comprise inorg. fibers (glass fibers and/or carbon fibers) and poly(vinyl alc.) fibers with **tensile strength** .gtoreq.15 g/denier and tensile modulus .gtoreq.200 g/denier as reinforcements and show loss coeff. .gtoreq.0.01 and half life .ltoreq.0.2 s in a vibration attenuation. Thus, a plate molded from prepregs of **epoxy** resins, 25 vol.% carbon fibers with **tensile strength** 320 **kg/mm2**, and 35 vol.% poly(vinyl alc.) fibers with **tensile strength** 17 g/denier and tensile modulus 310 g/denier showed loss coeff. 0.012 and half life 0.15 s.

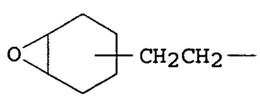
L70 ANSWER 12 OF 19 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1988:612310 HCAPLUS
DN 109:212310
ED Entered STN: 10 Dec 1988
TI Manufacture of precursors for carbon fibers with improved quality and physical properties
IN Saruyama, Hideo; Yamazaki, Katsumi
PA Toray Industries, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM D06M015-65
ICS D01F009-22; D01F011-00; D01F011-06; D06M015-643
CC 40-2 (Textiles and Fibers)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63165585	A2	19880708	JP 1986-315132	19861225
	JP 04033892	B4	19920604		
PRAI	JP 1986-315132		19861225		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 63165585	ICM	D06M015-65
	ICS	D01F009-22; D01F011-00; D01F011-06; D06M015-643

GI



I

AB In the manuf. of C fibers, fiber-to-fiber adhesion during the oxidn. and carbonization steps are prevented of precursor fibers are finished with mixts. contg. siloxanes having viscosity (.eta.) at 25.degree. 1000-15,000 cSt and contg. 0.05-10% alicyclic **epoxy** groups and siloxanes having .eta. 250-1000 CSt and contg. 0.05-10% amino groups to finish content 0.01-5%. Thus, a liq. contg. 99.3:0.7 acrylonitrile-itaconic acid copolymer was spun into air, treated with a coagulating soln., drawn in hot water to draw ratio 4, and treated with a lubricant contg. di-Me polysiloxane contg. 1.0% (I) groups and di-Me polysiloxane contg. 1.0% MeSiOCH2CH2NHCH2CH2NH2 to finish content 1 .+-. 0.2%. The fibers were then oxidized 25 min at 250-280.degree. and carbonized at 300-1300.degree. to give C fibers without fiber-to-fiber adhesion and **tensile strength** 505 **kg/mm2**, vs. 410 **kg**/mm2 using a siloxane contg. glycidyl groups.

L70 ANSWER 15 OF 19 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1987:599619 HCAPLUS
DN 107:199619
ED Entered STN: 27 Nov 1987
TI Surface treatment of carbon fibers
IN Matsuhisa, Yoji; Hiramatsu, Toru; Higuchi, Tomimasa
PA Toray Industries, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM D06M010-00
ICS C08J005-06
CC 37-6 (Plastics Manufacture and Processing)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 62149969	A2	19870703	JP 1985-290408	19851225
PRAI	JP 1985-290408		19851225		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 62149969	ICM	D06M010-00
	ICS	C08J005-06

AB Carbon fibers with improved adhesion to matrix resins are prepd. by first electrolytically treating them with aq. solns. of org. or inorg. acids or salts thereof at .gtoreq.40.degree. and .gtoreq.50 C/g and then heat-treating them under inert gas at .gtoreq.400.degree. and repeating the treatment steps for .gtoreq.2 cycles. Thus, a liq. contg. 99.5:0.5 acrylonitrile-itaconic acid copolymer ammonium salt was spun into a coagulating bath, washed, drawn in hot water to draw ratio 4, dried, drawn in steam to draw ratio 3, oxidized at 246-260.degree., and carbonized at 1300.degree. under N to give carbon fibers. The fibers were then treated with aq. 40% HNO3 for 0.5 min at 80.degree. and 400 C/g, washed, dried, and heat-treated 0.5 min at 700.degree. and subsequently treated by repeating the process for 5 cycles. These fibers were then embedded in 100:3:4 (wt. ratio) mixt. of Bakelite ERL 4221, BF3 monoethylamine, and acetone and heat-treated 30 min at 130.degree. to give a composite with **tensile strength** 610 **kg/mm2**, vs. 500 **kg**/mm2 for a composite obtained with the untreated carbon fibers.
ST **tensile strength** carbon fiber composite; **epoxy** carbon fiber composite tenacity; adhesion carbon fiber matrix resin; nitric acid carbon fiber treatment
IT Acrylic fibers, uses and miscellaneous
RL: USES (Uses)
(carbon fibers from, treatment with inorg. acid electrolytes for repeated cycles, with improved adhesion to matrix resins)
IT **Epoxy** resins, uses and miscellaneous
RL: USES (Uses)
(composites with carbon fibers, with increased **tensile strength**, pretreatment with inorg. acid electrolytes for repeated cycles in)

L70 ANSWER 18 OF 19 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1987:157478 HCAPLUS
DN 106:157478
ED Entered STN: 15 May 1987
TI Surface treatment of carbon fibers for composites
IN Matsuhisa, Yoji; Takada, Noriaki; Hiramatsu, Toru
PA Toray Industries, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM D06M010-00
ICA C08J005-06
CC 37-6 (Plastics Manufacture and Processing)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61282470	A2	19861212	JP 1985-118788	19850603
PRAI	JP 1985-118788		19850603		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 61282470	ICM	D06M010-00
	ICA	C08J005-06

AB Carbon fibers with improved adhesion to matrix resins are prepd. by treating them with strongly electrolytic solns. contg. inorg. or org. acids or their salts at .gtoreq.40.degree. and .gtoreq.1.5 A/m2 and then heat-treating them in gaseous reducing agents at .gtoreq.400.degree.. Thus, 99.5:0.5 acrylonitrile-itaconic acid copolymer was wet spun, drawn, oxidized in air at 240-260.degree. and carbonized at 1400.degree.. The fibers were then treated with 60% HNO3 at 80.degree. and 40 A/m2 and 400 C/g, washed, dried, and heat-treated in 5:95 H/N mixt. for 2 min at 800.degree.. These fibers were then embedded in 100:3:4 Bakelite ERL 4221/BH3 monoethylamine/acetone mixt. and cured 30 min at 130.degree. to give a composite with **tensile strength** 590 **kg** **/mm2**, vs. 500 **kg**/mm2 for a composite obtained with carbon fibers heat-treated at 200.degree..
ST carbon fiber electrolyte treatment; **epoxy** carbon fiber composite; adhesion carbon fiber matrix resin; nitric acid carbon fiber treatment
IT Acrylic fibers, uses and miscellaneous
RL: USES (Uses)
(carbon fiber manuf. from, for composites with high **tensile strength**)
IT **Epoxy** resins, uses and miscellaneous
RL: USES (Uses)
(composites with carbon fibers with surface treated with strong electrolytic solns., with high **tensile strength**)

L70 ANSWER 19 OF 19 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1985:114582 HCAPLUS
DN 102:114582
ED Entered STN: 06 Apr 1985
TI Impact-resistant matrix resins for advanced composites
IN Gardner, Hugh Chester; Michno, Michael John, Jr.; Brode, George Lewis; Cotter, Robert James
PA Union Carbide Corp. , USA
SO Eur. Pat. Appl., 38 pp.
CODEN: EPXXDW
DT Patent
LA English
IC C08G059-50; C08L063-00
ICI C08L063-00, C08L101-00
CC 37-6 (Plastics Manufacture and Processing)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 126494	A1	19841128	EP 1984-200106	19840127
	EP 126494	B1	19860709		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	ZA 8400548	A	19841224	ZA 1984-548	19840124
	DK 8400342	A	19841121	DK 1984-342	19840125
	NO 8400296	A	19841121	NO 1984-296	19840125
	CA 1216386	A1	19870106	CA 1984-445990	19840125
	AT 20673	E	19860715	AT 1984-200106	19840127
	IN 160475	A	19870711	IN 1984-DE87	19840130
	IL 70815	A1	19870831	IL 1984-70815	19840130
	JP 59215315	A2	19841205	JP 1984-18508	19840206
	JP 63061342	B4	19881129		
	BR 8400529	A	19850212	BR 1984-529	19840207
	US 4661559	A	19870428	US 1985-690405	19850110
	US 4760106	A	19880726	US 1987-1464	19870108

AB Composites having good impact resistance and **tensile** properties comprise an **epoxy** resin, thermoplastic polymer, structural fiber, and hardener selected from diamine I (Z = direct bond, O, S, SO2, CO, CO2, C(CF3)2, and/or CRR' where R and R' = H and/or C1-4 alkyl). Thus, a resin formulation was prepd. contg. Udel P 1800 394, bis(2,3-**epoxycyclopentyl**) ether 2400, and DEN 438 **epoxy** novolak 600 g and blended 1 h at 120.degree.. Then 2305 g blend was mixed with 2195 g 4,4'-bis(3-aminophenoxy)diphenyl sulfone [30203-11-3]. The compn. was heated 70 min at 120 .+-. 5.degree. and impregnated in a graphite ribbon. The composite was cured 3 h at 135.degree., and 4 h at 179.degree. and had **tensile strength** 2353 **MPa** and compressive **strength** 1373 **MPa**.

L64 ANSWER 2 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:606799 HCAPLUS
DN 121:206799
ED Entered STN: 29 Oct 1994
TI Investigation of wetting characteristics (fiber/resin adhesion) in carbon-fiber reinforced **epoxy** resins (CFRP). VI. Study on the surface treatment of liquid crystal pitch-type carbon fiber by anodizing process
AU Yamanaka, Masatoshi
CS Ind. Res. Cent. Shiga Prefect., Shiga, 520-30, Japan
SO Reports of the Industrial Research Center of Shiga Prefecture (1993), Volume Date 1992, 7, 46-50
CODEN: RIRPE5; ISSN: 0914-3750
DT Journal
LA Japanese
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38
AB A liq. crystal pitch-type carbon fiber (CF) having tensile modulus 500 **GPa** was anodized in 6N-HNO3 at applied voltage 0.4.apprx.1.8 V. Using these CF, UD-CFRP was prepd. with an **epoxy** resin (Epikoto 828), and ILSS (interlaminar shear strength) of the CFRP as well as the **tensile strength** of the single fiber was measured. With anodizing, ILSS increased markedly at applied voltage of 0.8.apprx.1.0 V, and reached to the level in gas-phase oxidn. (GPO). The deterioration of the single fiber itself was less than that in GPO.
ST liq cryst carbon fiber **epoxy** adhesion; pitch carbon fiber adhesion **epoxy** resin; anodization pitch carbon fiber adhesion **epoxy**
IT Anodization
(anodizing process for fiber surface modification of liq.-cryst. pitch-based carbon fibers and fiber adhesion to **epoxy** resin)
IT **Epoxy** resins, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(anodizing process for fiber surface modification of liq.-cryst. pitch-based carbon fibers and fiber adhesion to **epoxy** resin)

L64 ANSWER 3 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:136608 HCAPLUS
DN 120:136608
ED Entered STN: 19 Mar 1994
TI One direction oriented carbon fiber-reinforced prepreg and its manufacture and the composite prepared therefrom
IN Kubomura, Kenji; Kimura, Hiromi; Oosone, Hideo; Shima, Mikio
PA Nippon Steel Corp, Japan; Shinnittetsu Kagaku
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B29B011-16
ICS B29B015-08; B32B005-02; B32B005-28; B32B007-02; C08J005-24
ICI B29K105-06
CC 38-3 (Plastics Fabrication and Uses)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 05278032	A2	19931026	JP 1992-140617	19920601
	JP 2566705	B2	19961225		
	US 5552214	A	19960903	US 1995-433599	19950503
PRAI	JP 1992-22221	A1	19920207		
	JP 1992-31888	A	19920219		
	JP 1992-140617	A	19920601		
	JP 1992-140618	A	19920601		
	US 1993-13442	B1	19930204		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 05278032	ICM	B29B011-16
	ICS	B29B015-08; B32B005-02; B32B005-28; B32B007-02; C08J005-24
	ICI	B29K105-06
US 5552214	NCL	442/391.000; 156/176.000; 156/178.000; 205/176.000; 427/372.200; 427/374.100; 428/408.000; 428/902.000; 442/415.000
	ECLA	B29C070/20A; B29C070/50; B32B005/26; C08J005/04; D01F009/145; D01F009/22; D04H013/00B4

AB The title prepreg comprise plastics (e.g., **epoxy** resin), pitch carbon fibers (A) having tensile elasticity .gtoreq.400 **Gpa**, **tensile strength** .gtoreq.2000 Mpa, av. diam. 4-15 .mu.m, and compressive strength (in one direction) 100-800 Mpa, and polyacrylonitrile carbon fiber (B), which was adjacent to that of A, having tensile elasticity .gtoreq.200 Mpa, compressive strength greater than that of A, and av. diam. smaller than that of A.

L64 ANSWER 5 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1993:450898 HCAPLUS
DN 119:50898
ED Entered STN: 07 Aug 1993
TI Prepregs for impact-resistant structural materials for aircraft
IN Goto, Kazuya; Hattori, Toshihiro; Hayashi, Shigeji; Sugimori, Masahiro; Kato, Takeshi; Murata, Takashi; Tada, Takashi
PA Mitsubishi Rayon Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C08J005-04
ICS C08J005-24; C08K007-04; C08K013-04; C08L101-00
CC 38-3 (Plastics Fabrication and Uses)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04325528	A2	19921113	JP 1991-97016	19910426
	JP 3238719	B2	20011217		
PRAI	JP 1991-97016		19910426		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 04325528	ICM	C08J005-04
	ICS	C08J005-24; C08K007-04; C08K013-04; C08L101-00

AB The title prepregs comprise 60-75:40-25 mixts. of reinforcing fibers (e.g., carbon or graphite fibers) having modulus .gtoreq.200 **GPa** and **tensile strength** .gtoreq.3500 MPa, and matrix resins and 0.5-40 parts synthetic fibers with elongation .gtoreq.10% per 100 parts matrix resin. A carbon fiber prepreg contg. YH 434L, ELM-100, Epikote 828, and diaminodiphenyl sulfone was covered with nylon 12 multifilaments and molded to give test pieces with high compressive strength after impact.
ST carbon fiber **epoxy** composite prepreg; graphite fiber plastic composite prepreg; impact strength plastic fiber composite; aircraft structure plastic fiber composite; nylon fiber **epoxy** composite prepreg
IT Aircraft
(composites with high impact strength for)
IT Polyamide fibers, uses
RL: USES (Uses)
(**epoxy** resin prepregs contg. carbon fibers and, for composites with high impact strength)
IT Carbon fibers, uses
RL: USES (Uses)
(**epoxy** resin prepregs contg. polyamide fibers and, for composites with high impact strength)
IT Synthetic fibers, polymeric
RL: USES (Uses)
(prepregs contg. carbon or graphite fibers and, for composites with high impact strength)
IT **Epoxy** resins, uses
RL: USES (Uses)
(prepregs, contg. carbon fibers and nylon fibers, for composites with high impact strength)

L64 ANSWER 9 OF 12 HCAPLUS
AN 1988:205651 HCAPLUS
DN 108:205651
ED Entered STN: 11 Jun 1988
TI Z-directional laminate reinforcing material high performance Torayca
carbon stitching thread
AU Matsuhisa, Yoji; Hiramatsu, Toru; Nishimura, Akira
CS Fibers Text. Res. Lab., Toray Ind. Inc., Masaki, 791-31, Japan
SO International SAMPE Symposium and Exhibition (1988), 33(Mater.--Pathway
Future), 91-103
CODEN: ISSEEG; ISSN: 0891-0138
DT Journal
LA English
CC 37-6 (Plastics Manufacture and Processing)
AB Torayca X900-1000 high-strength carbon fiber was developed which was
suitable for Z-directional reinforced laminates. The thread showed good
abrasion resistance. The **epoxy**-impregnated thread, of
tensile strength 5.4 **GPa** and ultimated strain
1.8%, made of 2-plied X900, showed good stitching processability from the
point of fiber breakage and fuzzing, and was almost as suitable as aramid
thread.
ST carbon fiber stitching thread laminate
IT **Epoxy** resins, properties
RL: PRP (Properties)
(carbon fiber stitching thread-reinforced, for Z-directional laminates)
IT Carbon fibers, uses and miscellaneous
RL: USES (Uses)
(stitching threads,, **epoxy** resins reinforced with,
Z-directional laminates)
IT **25085-98-7**, Bakelite ERL 4221
RL: USES (Uses)
(carbon fiber stitching thread-reinforced Bakelite ERL 4221, for
Z-directional laminates)
IT **7440-44-0**
RL: USES (Uses)
(carbon fibers, stitching threads, **epoxy** resins reinforced
with, Z-directional laminates)

L64 ANSWER 10 OF 12 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1987:516384 HCAPLUS
DN 107:116384
ED Entered STN: 05 Oct 1987
TI "Torayca" T1000 ultra high strength fiber and its composite properties
AU Hiramatsu, Toru; Higuchi, Tomitake; Matsui, Junichi
CS Ehime Lab., Toray Ind., Inc., 791-31, Japan
SO Materials Science Monographs (1987), 41(Looking Ahead Mater. Processes), 1-8
CODEN: MSMODP; ISSN: 0166-6010
DT Journal
LA English
CC 37-6 (Plastics Manufacture and Processing)
AB The very-high-strength and intermediate-modulus carbon fiber Torayca T1000 having **tensile strength** 7.06 **GPa**, modulus of elasticity 294 **GPa**, and tensile strain at failure 2.4% is used with **epoxy** resins to produce unidirectional composites having 0.degree. **tensile strength** 3.8 **GPa**, a value almost twice that of composites contg. Torayca T300 carbon fiber as the reinforcement, and strain at failure is >2%. The high-strength and high-modulus carbon fibers Torayca M40J and Torayca M46J provide **epoxy** resin composites having 0.degree. **tensile strength** 2.15 and 2.06 **GPa**, resp., and 0.degree. compressive strength 1.17 and 1.07 **GPa**, resp.
ST carbon fiber **epoxy** composite
IT **Epoxy** resins, properties
RL: PRP (Properties)
(composites with carbon fibers, mech. properties of unidirectional)
IT Carbon fibers, properties
RL: PRP (Properties)
(composites with **epoxy** resins, mech. properties of unidirectional)
IT **7440-44-0**
RL: USES (Uses)
(carbon fibers, composites with **epoxy** resins, mech. properties of unidirectional)

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L58 ANSWER 14 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:938610 HCAPLUS
DN 138:272354
ED Entered STN: 11 Dec 2002
TI Functionalization of multiwall carbon **nanotubes**: properties of **nanotubes-epoxy** composites
AU Breton, Y.; Delpeux, S.; Benoit, R.; Salvetat, J. P.; Sinturel, C.; Beguin, F.; Bonnamy, S.; Desarmot, G.; Boufendi, L.
CS CRMD, CNRS-University, Orleans, 45071, Fr.
SO Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (2002), 387, 135-140
CODEN: MCLCE9; ISSN: 1058-725X
PB Taylor & Francis Ltd.
DT Journal
LA English
CC 37-6 (Plastics Manufacture and Processing)
AB Multiwall **nanotubes** were functionalized using plasma treatments, chem. oxidn., ball milling and thermal treatments. In optimized conditions, plasmas modify **nanotubes** surface chem. with a great selectivity. Vickers microindentation and tension tests performed on **epoxy** resin loaded with multiwall **nanotubes** allow comparison of the influence of **nanotubes** surface chem. and microtexture on loaded resin mech. properties.
ST carbon **nanotube epoxy** composite
IT **Nanotubes**
(carbon; properties of **nanotubes-epoxy** composites)
IT Elongation, mechanical
Tensile strength
Young's modulus
(properties of **nanotubes-epoxy** composites)
IT **Epoxy** resins, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(properties of **nanotubes-epoxy** composites)
IT 7440-44-0, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**nanotubes**; properties of **nanotubes-epoxy** composites)

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L58 ANSWER 15 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:910898 HCAPLUS
DN 138:305162
ED Entered STN: 02 Dec 2002
TI Modifications of **nanotubes** surface and micro-texture influence on MWNTS-based composites properties
AU Breton, Y.; Salvetat, J. P.; Desarmot, G.; Delpeux, S.; Sinturel, C.; Beguin, F.; Bonnamy, S.
CS CRMD, CNRS-Universite 1b, Orleans, 45071, Fr.
SO AIP Conference Proceedings (2002), 633(Structural and Electronic Properties of Molecular Nanostructures), 574-578
CODEN: APCPCS; ISSN: 0094-243X
PB American Institute of Physics
DT Journal
LA English
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 37
AB Tensile tests were performed on multi-walled carbon **nanotubes**-**epoxy** composites. Stress/strain curves show that filling **epoxy** resin with **nanotubes** results in brittle composites. However, it is possible to get an increase of the elastic behavior of the composite. Annealed MWNTs permit to increase the composites Young's modulus by 60 %. Functionalization of **nanotubes** allows a better dispersion of **nanotubes** in **epoxy** and provides an increase of the interfacial shear strength via an enhancement of the MWNTs wetting. We also show that increasing load transfer between **epoxy** and **nanotubes** has no influence on the composites modulus.
ST carbon **nanotubes** **epoxy** composite surface interfacial shear strength
IT **Nanotubes**
(carbon, filler; **nanotubes** surface and micro-texture influence on carbon **epoxy** composites properties)
IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(**epoxy**; **nanotubes** surface and micro-texture influence on carbon **epoxy** composites properties)
IT Shear strength
(interface; **nanotubes** surface and micro-texture influence on carbon **epoxy** composites properties)
IT Stress-strain relationship
Surface area
Tensile strength
Young's modulus
(**nanotubes** surface and micro-texture influence on carbon **epoxy** composites properties)
IT Reinforced plastics
RL: PRP (Properties)
(**nanotubes** surface and micro-texture influence on carbon **epoxy** composites properties)
IT **Epoxy** resins, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)

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L58 ANSWER 16 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:569896 HCAPLUS
DN 137:236337
ED Entered STN: 01 Aug 2002
TI Carbon **nanotube** reinforcement of a filament winding resin
AU Spindler-Ranta, Sean; Bakis, Charles E.
CS Engineering Science and Mechanics Department, Penn State University, University Park, PA, 16802, USA
SO International SAMPE Symposium and Exhibition (2002), 47, 1775-1787
CODEN: ISSEEG; ISSN: 0891-0138
PB Society for the Advancement of Material and Process Engineering
DT Journal
LA English
CC 57-9 (Ceramics)
Section cross-reference(s): 38
AB A method for dispersing single walled carbon **nanotubes** (**SWNTs**) in **epoxy** has been investigated. Arc-produced **SWNTs** were dispersed in bisphenol A **epoxy** resin and triamine hardener with the aid of a surfactant and high power ultrasound. The quality of dispersion was measured using SEM images of fracture surfaces. The objective was to produce carbon **nanotube** reinforced **epoxy** which could then be used in filament winding. The quality of dispersion was found to be highly dependent on the specific dispersion method followed. Clumps of **nanotube** ropes have been reduced and sepd. into individual ropes consisting of bundles of roughly 20 **nanotubes** across the diam. Composite rings were filament wound with carbon fibers and **epoxy** contg. dispersed **nanotube** ropes at a concn. of 1 wt.%. The rings were tested in compression transverse to the fibers and it was found that the **nanotubes** did not affect the compressive strength of the composite.
ST nanocomposite carbon **nanotube** reinforcement dispersion resin strength
IT Compressive strength
Dispersion (of materials)
Filaments
Molding
Ropes
Sound and Ultrasound
Tensile strength
Young's modulus
(carbon **nanotube** reinforcement of a filament winding resin)
IT Carbon fibers, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(carbon **nanotube** reinforcement of a filament winding resin)
IT Nanocomposites
(carbon **nanotube**-reinforced bisphenol A **epoxy**; carbon **nanotube** reinforcement of a filament winding resin)